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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/559,065	04/28/2000	German Goldszmidt	YO999-479	3172

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EXAMINER

LIN, WEN TAI

ART UNIT	PAPER NUMBER
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2154

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/559,065

Applicant(s)

GOLDSZMIDT ET AL.

Examiner

Wen-Tai Lin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 31-39 and 48 is/are allowed.
- 6) ☒ Claim(s) 1-10, 12, 13, 17, 19-23, 28-30 and 40-47 is/are rejected.
- 7) ☒ Claim(s) 11, 14-16, 18 and 24-27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Claims 1-48 are presented for examination.
2. The finality of the instant application, as set forth in the previous office action, is withdrawn because Applicant correctly pointed out that Igarashi does not qualify as prior art.
3. Claims 31-39 and 48 are allowable because the prior art of record does not teach or suggest individually or in combination a method of dynamically allocating/de-allocating server resources for a plurality of customers by throttling the inbound traffic associated with each existing customer (i.e., by reducing or increasing the traffic class as defined in each customer's service level agreement) in order to place the operation state of each customer within a predetermined area defined by a metric and a number of resources for each customer.
4. The text of those sections of Title 35, USC code not included in this action can be found in the previous Office Action.
5. Claims 1, 40 and 47 are rejected under 35 U.S.C. 102(e) as being anticipated by Kryskow, JR. [U.S. PGPub 20030055973].

6. As to claims 1, 40 and 47, Kryskow teaches the invention as claimed including a method for managing and controlling allocation and de-allocation of resources based on a guaranteed services based on a best effort for a plurality of customers [Abstract] said method comprising

dynamically allocating resources for a plurality of customers, such that said resources received by a customer are dynamically controlled [note that within each level of agreement the system uses an inherently dynamic process for dynamically allocating or de-allocating the resources to meet the SLA – see also Applicant's remarks on page 16, filed on 8/9/04] and said customer receives a guaranteed minimum amount of resources as specified under a service level agreement [note that having a guaranteed minimum amount of resources or QoS is inherent to an SLA], said service level agreement including at least one parameter defining conditions of dynamically redefining said allocating and de-allocating said server resources [paragraphs 44-46 and 51].

7. Claims 1-10, 12-13, 17, 19-23, 28-30 and 40-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choudhury et al. (hereafter "Choudhury") [U.S. Pat. No. 5719854] in view of Kryskow, JR. [U.S. PGPub 20030055973].

8. Choudhury was cited in the previous office action.

9. As to claims 1, 40 and 47, Choudhury teaches the invention substantially as claimed including: a method for managing and controlling allocation and de-allocation of resources based on a guaranteed services based on a best effort for a plurality of customers [Abstract; Figs. 3-5 and 10], said method comprising:

dynamically allocating resources for a plurality of customers, such that said resources received by a customer are dynamically controlled (i.e., dynamically allocated or de-allocated) [e.g., 801-804, Fig.8; 1007, Fig.10; col.5, lines 53-65; i.e., in dealing with the fluctuations in customer requests and/or resource failures, it is clear that Choudhury's system must dynamically allocate and/or de-allocate the resources because these customer events are not predictable]; and said customer receives a guaranteed minimum amount of resources in accordance with the customer's subscribed service grade [col.6, lines 22-39; col.14, lines 9-16; i.e., under nominal operating condition there is a minimum amount of resource associated with each guaranteed minimum bound (GM) on the number of customer's request traffic. Note that the subscribed service grade, which is nominally defined in a quality of service, constitute a service level agreement].

Choudhury does not teach that the service level agreement includes at least one parameter defining conditions of dynamically redefining said allocating and de-allocating said server resources.

However, Kryskow teaches a method for adaptively or dynamically allocating or

re-allocating (i.e., redefining the allocation and de-allocation of resources) by enabling the management system to automatically adjust the service level agreements based on the current characterization baseline of the network as measured by the process [paragraphs 44-46 and 51].

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Choudhury and Kryskow by allowing a customer's service classes to vary in accordance with predefined policies (as taught by Kryskow) while using Choudhury's method for maintaining the upper and lower bounds as defined in each service class, because by doing so it would further broaden Choudhury's customer base by providing each customer adjustable service level agreements for reflecting the availability of system resources [Choudhury: Fig.5].

10. As to claim 2, Choudhury teaches that the method further comprising utilizing a performance metric to increase or decrease an inbound traffic to a customer [col.11, lines 1-6 and 40-42; e.g., the request blocking probability or request arrival rate are performance metrics of, interalia, the inbound traffic to a customer].

11. As to claim 3, Choudhury further teaches supporting minimum and maximum server resource-based service level agreements for a plurality of customers [Abstract: lines 6-16; note that, based on the performance function, the upper and lower performance requirements can be translated into maximum and minimum resources (i.e., via function inversion), respectively].

12. As to claim 4, Choudhury teaches that the method further comprising utilizing performance metrics to control the allocation of additional server resources to a plurality of customers using bounds on given service level metrics [304-311, Fig.3; e.g., additional resources is required when new customer request is detected and then all the existing service bounds would have to be checked against the new allocations].

13. As to claims 5-6, Choudhury teaches that the method further comprising:  
supporting a plurality of service level metrics and selectively utilizing a plurality of different metrics for a plurality of different customers [col.11, lines 1-25; col.12, lines 20-34, wherein blocking probability, cost, request arrival rate, etc. are different service level metrics].

14. As to claim 7, Choudhury further teaches utilizing a service level metric, an amount of allocable resources, and an inbound traffic rate, for defining a state of a current service level (M,N,R) for each customer [col.11, lines 1-39, wherein the service rate (or blocking probability), the resource requirements (vector b) and the arrival rate correspond to M, N, and R respectively].

15. As to claim 8, Choudhury further teaches utilizing a target service level metric  $M_t$  to maintain an actual service level M substantially at or near a target service level so as to be guaranteed to fall between low and high bounds ( $M_{lowbound}$  and  $M_{highbound}$ )

specified in a service level agreement (SLA) [1001-1006, Fig.10; note that the  $M_{lowbound}$  and  $M_{highbound}$  correspond to Choudhury's UL and GM bounds, respectively, which are associated with the target service level metric  $M_t$ ].

16. As to claims 9-10 and 12, Choudhury further teaches:

- computing a target amount of resources  $N_t$  and an inbound traffic rate  $R_t$  from a given target service level metric  $M_t$  and based on the current service level  $(M, N, R)$  [col.7, lines 29-49 and col.8, lines 19-31; note that this is an function inversion process];
- performing at least one of a numerical analysis, a mathematical formulaic operation, an add-one/subtract-one, and a quick simulation for deriving a target amount of resources  $N_t$  and an inbound traffic rate  $R_t$  ) [Choudhury: col.6, lines 40-52; col.7, lines 35-38]; and
- deciding whether or not to add a server resource or to reduce an inbound traffic rate to meet service level agreements for a plurality of customers [308-311, Fig.3].

17. As to claim 28, Choudhury teaches maximizing revenue potential when allocating resources beyond a minimum amount for a customer [Fig.3; col.14, lines 8-16; col.11, lines 32-39 and 50-53; i.e., through the steps of Fig 3, it is obvious that the maximal revenue is achieved by accepting as many new customers as possible, while



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maintaining the service level of each customer close to the guaranteed minimum bound].

18. As to claims 29-30, Choudhury further teaches defining a unit of said resources [col.13, lines 18-64] wherein the variable  $b_{ij}$  (number of units in resource  $i$  required by each request of customer  $j$ ) can obviously be a constant or varied according to the performance evaluation model [col.11, lines 32-39; col.13, lines 21-64].

19. As to claims 13, 17, 19-23 and 41-46, since the features of these claims can also be found in claims 1, 3 and 9, they are rejected for the same reasons set forth in the rejection of claims 1, 3 and 9 above.

20. Claims 11, 14-16, 18 and 24-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

21. Applicant's arguments with respect to claims 1-10, 12-13, 17, 19-23, 28-30 and 40-47 on 8/9/2004 and 1/3/2005 have been considered but are moot in view of the new ground(s) of rejection. It is noted that the amendments made in all the independent claims 1, 40-41 and 47 by adding the "redefining ..." feature does change the scope of the originally claimed subject matter. Namely, the "redefining" phrase requiring a

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customer's service class to be changed dynamically was not found in the previous claim languages.

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

23. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen-Tai Lin whose telephone number is (571) 272-3969. The examiner can normally be reached on Monday-Friday(8:00-5:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571) 272-3964. The official fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9306.

Wen-Tai Lin

April 16, 2005



4/15/05